

IN THE CLAIMS:

Delete claims 1 - 45 and replace them with the following claims 46 - 64:

46. An expression vector, comprising of antigens capable of inducing systemic and secretory immune responses against said infectious agents having tropism for mucoses, or antibodies which confer protection against said infectious agents, said antigens or antibodies being presented in the gastrointestinal and respiratory tracts of animals treated with a recombinant expression system comprising said expression vector, characterized by:

(a) a defective viral genome derived from the porcine transmissible gastroenteritis virus (TGEV), or its corresponding complementary DNA (cDNA), comprising the TGEV replicase recognition signals located on end 3' and 5' and, at least, a promoter, and

(b) at least, one DNA sequence coding for a product elected from the group consisting of:

(i) an antigen capable of inducing a systemic and secretory response against an infectious agent having tropism for mucoses, and

(ii) an antibody which confers protection against said infectious agent, said DNA sequence being operatively linked to, at least, a promoter which is present in said defective viral genome derived from TGEV.

47. The vector according to claim 46, wherein said defective viral genome derived from TGEV or its corresponding cDNA, further comprises the complete sequence coding for the TGEV replicase.

48. The vector according to claim 46, comprising more than one DNA sequence, each one coding for a different antigen capable of inducing a systemic and secretory response against an infectious agent having tropism for mucoses.

49. The vector according to claim 46, comprising more than one DNA sequence, each one coding for a different antibody that confers protection against an infectious agent having tropism for mucoses.

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50. A recombinant expression system for expressing antigens capable of inducing systemic and secretory immune responses against infectious agents having tropism for mucoses, or antibodies which confer protection against said infectious agents, said antigens or antibodies being presented in the gastrointestinal and respiratory tracts of animals treated with said recombinant expression system, comprising:

- (a) an expression vector of antigens capable of inducing systemic and secretory immune responses against infectious agents having tropism for mucoses, or antibodies which confer protection against said infectious agents, and
- (b) a helper virus.

51. The recombinant expression system according to claim 50, wherein said vector comprises more than one DNA sequence, each one coding for a different antigen capable of inducing a systemic and secretory response against an infectious agent having tropism for mucoses.

52. The recombinant expression system according to claim 51, comprising different expression vectors, each one containing a different DNA sequence coding for a different antigen capable of inducing a systemic and secretory response against infectious agents having tropism for mucoses.

53. The recombinant expression system according to claim 50, wherein said vector comprises more than one DNA sequence, each one coding for a different antibody which confers protection against an infectious agent having tropism for mucoses.

54. The recombinant expression system according to claim 52, comprising different expression vectors according to claim 1, each one containing a different DNA sequence coding for a different antibody which confer protection against different infectious agents having tropism for mucoses.

55. The recombinant expression system according to claim 50, wherein said helper virus provides the functional and structural proteins for the replication and encapsidation of the defective genome derived from TGEV.

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56. The recombinant expression system according to claim 50, wherein said helper virus provides the functional and structural proteins for the encapsidation of the defective genome derived from TGEV.

57. A vaccine for protecting animals against an infectious agent having tropism for mucoses, comprising

(a) a suitable quantity of a recombinant expression system for expressing antigens capable of inducing systematic and secretory immune responses against infectious agents having tropism for mucoses, or antibodies which confer protection against said infectious agents, said antigens or antibodies being presented in the gastrointestinal and respiratory tracts of animals treated with said recombinant expression system, comprising:

(i) an expression vector of antigens capable of inducing systemic and secretory immune responses against infectious agents having tropism for mucoses, or antibodies which confer protection against said infectious agents, and

(ii) a helper virus;

(b) with a pharmaceutically acceptable excipient.

58. A vaccine according to claim 57, for protecting pigs against infectious agents having tropism for mucoses, comprising:

(a) a recombinant expression system selected from the group consisting of:

(i) a recombinant expression system comprising at least one expression vector containing at least one DNA sequence coding for an antigen of a porcine pathogen having tropism for mucoses;

(ii) a recombinant expression system comprising an expression vector containing more than one DNA sequence, each one coding for an antigen of a different porcine pathogen having tropism for mucoses; and

(iii) a recombinant expression system comprising different expression vectors each one containing at least a DNA sequence coding for an antigen of a porcine pathogen having tropism for mucoses; and

(b) a porcine coronavirus as a helper virus.

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59. A vaccine according to claim 58, wherein said porcine pathogen is selected from the group consisting of *Actinobacillus suis*, *Actinobacillus pleuropneumoniae*, *Haemophilus parasuis*, Porcine parvovirus, *Leptospira*, *Escherichia coli*, *Erysipelothrix rhusiopathiae*, *Pasteurella Multocida*, *Borderella bronchiseptica*, *Clostridium* sp., *Serpulina hyodysenteriae*, *Mycoplasma hyopneumoniae*, porcine epidemic diarrhea virus (PEDV), porcine respiratory coronavirus, rotavirus, or against the pathogens causative of porcine reproductive and respiratory syndrome, Aujeszky's disease (pseudorabies), swine influenza or transmissible gastroenteritis and the etiologic agents of atrophic rhinitis and proliferative ileitis.

60. A vaccine according to claim 57, for protecting dogs against canine infectious agents having tropism for mucoses, comprising:

(a) a recombinant expression system selected from the group consisting of:

(i) a recombinant expression system comprising at least one expression vector containing at least one DNA sequence coding for an antigen of a canine pathogen having tropism for mucoses;

(ii) a recombinant expression system comprising an expression vector containing more than one DNA sequence, each one coding for an antigen of a different canine pathogen having tropism for mucoses; and

(iii) a recombinant expression system comprising different expression vectors, each one containing at least DNA sequence coding for an antigen of a canine pathogen having tropism for mucoses; and

(b) a helper virus selected from the group consisting of a canine coronavirus and a recombinant porcine coronavirus expressing the envelope protein which is recognized by the specified cell-surface receptors on canine target cells.

61. A vaccine according to claim 60, wherein said canine pathogen is selected from the group consisting of: canine herpesviruses, canine adenovirus types 1 and 2, canine parvovirus types 1 and 2, canine reovirus, canine rotavirus, canine coronavirus, canine parainfluenza virus, canine influenza virus, rabies virus, retrovirus and canine calicivirus.

62. A vaccine according to claim 57, for protecting cats against feline infectious agents having tropism for mucosae, comprising:

(a) a recombinant expression system selected from the group consisting of:

(i) a recombinant expression system comprising at least one expression vector containing at least one DNA sequence coding for an antigen of a feline pathogen having tropism for mucosae;

(ii) a recombinant expression system comprising an expression vector containing more than one DNA sequence, each one coding for an antigen of a different feline pathogen having tropism for mucosae; and

(iii) a recombinant expression system comprising different expression vectors, each one containing at least a DNA sequence coding for an antigen of a feline pathogen having tropism for mucosae; and

(b) a helper virus selected from the group consisting of a feline coronavirus and a recombinant porcine coronavirus (expressing the envelope protein which is recognized by the specific cell-surface receptors on feline target cells).

63. A vaccine according to claim 62, wherein said feline pathogen is selected from the group consisting of feline calicivirus, feline immunodeficiency virus, feline herpesviruses, feline panleukopenia virus, feline reovirus, feline coronavirus, feline infectious peritonitis virus, rabies virus, feline Chlamydia psittaci and feline leukemia virus.

64. A vaccine according to claim 57, for protecting pigs against porcine transmissible gastroenteritis virus (TGEV), wherein the recombinant expression system comprises at least one expression vector containing at least a DNA sequence coding for the monoclonal antibody identified as 6A.C3 capable of neutralizing TGEV.

REMARKS

Applicants have amended the claims in order to more clearly define the invention. No new matter has been added.